Data Sheet
Graphic Cards for Fujitsu ESPRIMO PCs

Fujitsu ESPRIMO PCs are used for common office applications. To fulfill the demands of demanding applications, Fujitsu ESPRIMO PCs can be ordered with either graphics on board or a graphics card plugged into an expansion slot.

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General

Fujitsu offers for their ESPRIMO PCs different suppliers for graphic cards, which are selected carefully. Parameters like quality, availability and experiences play an important role.

The Fujitsu ESPRIMO PCs feature on board graphics within their chipsets and/or processors. However, a range of optional graphic cards are available.

	NVIDIA Quadro NVS 300 512MB PCIe x16 (available w/ LP or FH bracket)
Description	Low Profile PCI Express x16 - graphics controller card
Field of application	Professional 2D and 3D office text and graphics display applications, DVI dual display applications, beamer presentation, Hardware prepared for picture and video recording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	-
Connectors on graphic-board	1*DMS 59
Connectors after LFH-splittercable	2*DVI-I (15pin VGA possible by using optional DVI/VGA-converters) or 2*Display Port
Shipped adapters	LFH-splitter cable must be ordered separately DVI/VGA-converters must be ordered separately
Possible monitor combinations	With DMS 59 to DVI-I splitter cable: Single/Dual VGA/DVI-D/DVI-A/DVI-I in every combination possible on each output. With DMS 59 to DP splitter cable: only digital connections are possible. Combination with DP/DVI-D adapter cable possible.
Dual RAMDAC	each 400MHz
Electrical power consumption	5W - 14W
Technical specification	Local Frame Buffer: 512MB, mounted on graphics board Graphics processor: 520 MHz Core Frequency Memory Frequency: 790 MHz, 64bit memory interface Full DX10.1 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit / 64bit, Windows VISTA 32bit / 64bit, Windows 7 32bit / 64bit, Windows 8 / Windows 8 Pro
Dimensions (W x D in mm)	145 x 65
Cooling solution	fanless (heatsink)
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows 7 32-bit, Windows 7 64-bit, Windows 8, Windows 8 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data). Colordepth [bit/pixel]: 8/16/32

Resolutions / Display types

Resolutions		Display type: 4:3 or 5:4	Display type: 16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (analog only)	x	x	-
2048x1536 (analog only)	x	x	-
2560x1440 (DP only)	x	-	x
2560x1600 (DP only)	x	-	x

	ATI Radeon HD7350 1GB FH
Description	PCI Express x16 - graphics controller card
Field of application	DX11 gaming support with entry level performance. Smooth playing up to 1024x768 resolution possible. 2D and 3D office text and graphics display applications, TV projector, beamer presentation, picture and video recording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	-
Connectors on graphic-board	2*DVI-I(1*Singlelink + 1*Duallink). (15pin VGA by using DVI/VGA-converter)
Connectors after LFH-splittercable	-
Shipped adapters	2*DV/VGA converter
Possible monitor combinations	Single/Dual VGA/DVI-D/DVI-A/DVI-I in every combination possible on each output
Dual RAMDAC	each 400MHz
Electrical power consumption	9W - 15W
Technical specification	Local Frame Buffer: 1GB DDR3, mounted on graphics board Graphics processor: 650 MHz Core Frequency Memory Frequency: 800 MHz (=DDR-rate 1600MHz), 64bit memory interface Full DX11 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit / 64bit, Windows VISTA 32bit / 64bit, Windows 7 32bit / 64bit, Windows 8 / Windows 8 Pro
Dimensions(W x D in mm)	168 x 106
Cooling solution	fanless (heatsink)
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows 7 32-bit, Windows 7 64-bit, Windows 8, Windows 8 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data) Colordepth [bit/pixel]: 32

Resolutions / Display types

Resolutions		Display type: 4:3 or 5:4	Display type: 16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (analog only)	x	x	-
2048x1536 (analog only)	x	x	-
2560x1440	x	-	x
2560x1600	x	-	x

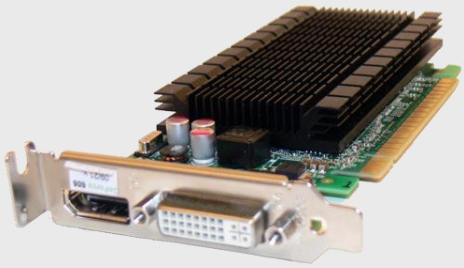
	AMD Radeon R9 255 2GB FH
Description	PCI Express x16 - graphics controller card
Field of application	DX11.1 gaming support with high midrange performance. Smooth playing up to 2560x1440 resolution possible. Prepared for upcoming 4k displays with up to 4096x2160 resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	HDMI possible via DVI to HDMI converter (optional)
Connectors on graphic-board	1*DVI-I dual-link, 2*DP
Connectors after LFH-splittercable	-
Shipped adapters	1*DVI/VGA converter
Possible monitor combinations	DP, DP, DVI-I => three monitor support; VGA possible over the DVI-I interface via DVI to VGA adapter (bundled); 2nd DVI via DP to DVI adapter cable (optional)
Dual RAMDAC	each 400MHz
Electrical power consumption	4W - 68Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 2GB GDDR5, mounted on graphics board Graphics processor: 930 MHz Core Frequency Memory Frequency: 2300 MHz (=DDR-rate 4600MHz), 128bit memory interface Full DX11.1 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows 7 32bit / 64bit, Windows 8 / Windows 8 Pro, Windows 8.1 / Windows 8.1 Pro
Dimensions (W x D in mm)	173 x 110
Cooling solution	with fan
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows 7 32-bit, Windows 7 64-bit, Windows 8, Windows 8 Pro, Windows 8.1, Windows 8.1 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data)

Resolutions / Display types

Resolutions		Display type: 4:3 or 5:4	Display type: 16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (analog only)	x	x	-
2048x1536 (analog only)	x	x	-
2560x1440 (DVI-D and DP only	x	-	x
2560x1600 (DVI-D and DP only	x	-	x
3840x2160 @ 30Hz (DP only)	x	-	x
4096x2160 @ 30Hz (DP only)	x	-	x

	NVIDIA GeForce 605 DisplayPort 1GB (available w/ LP or FH bracket)
Description	Low Profile PCI Express x16 - graphics controller card
Field of application	DX11 gaming support with entry level performance. 2D and 3D office text and graphics display applications, TV projector, and beamer presentation, Hardware prepared for picture and video recording and editing for i.e. Internet presentations. HDTV-Displaying of HDCP encrypted videos in full resolution. The board features a DisplayPort interface and is capable of high resolutions up to 2560x1600.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	HDMI possible via DVI to HDMI converter (optional)
Connectors on graphic-board	1*DVI-I duallink, 1* DP
Connectors after LFH-splittercable	-
Shipped adapters	1*DVI/VGA converter
Possible monitor combinations	DP, DVI-I => dual monitor support; VGA possible over the DVI-I interface via DVI to VGA adapter (bundled); 2nd DVI via DP to DVI adapter cable (optional)
Dual RAMDAC	each 400MHz
Electrical power consumption	6W - 23Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 1GB, mounted on graphics board Graphics processor: 520 MHz Core Frequency Memory Frequency: 800 MHz (=DDR-rate 1600), 64bit memory interface Full DX11 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit, Windows 8 / Windows 8 Pro
Dimensions(W x D in mm)	145 x 65
Cooling solution	fanless (heatsink)
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows 7 32-bit, Windows 7 64-bit, Windows 8, Windows 8 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data) Colordepth [bit/pixel]: 8/16/32

Resolutions / Display types



Resolutions		Display type:	
		4:3 or 5:4	16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (analog only)	x	x	-
2048x1536 (analog only)	x	x	-
2560x1440 (DVI-D and DP only)	x	-	x
2560x1600 (DVI-D and DP only)	x	-	x

	NVIDIA GeForce GT 630 DisplayPort 2GB (available w/ LP or FH bracket)
Description	Low Profile PCI Express x16 - graphics controller card
Field of application	DX11.1 gaming support with midrange performance. Smooth playing up to 1920x1200 resolution possible. 2D and 3D office text and graphics display applications, TV projector, beamer presentation, picture and video recording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	HDMI possible via DVI to HDMI converter (optional)
Connectors on graphic-board	1*DVI-I duallink, 1* DP
Connectors after LFH-splittercable	-
Shipped adapters	1*DVI/VGA converter
Possible monitor combinations	DP, DVI-I => dual monitor support; VGA possible over the DVI-I interface via DVI to VGA adapter (bundled); 2nd DVI via DP to DVI adapter cable (optional)
Dual RAMDAC	each 400MHz
Electrical power consumption	8W - 35Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 2GB DDR3, mounted on graphics board Graphics processor: 875 MHz Core Frequency Memory Frequency: 891 MHz (=DDR-rate 1600), 128bit memory interface Full DX11 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit, Windows 8 / Windows 8 Pro
Dimensions(W x D in mm)	145 x 65, low profile bracket or full height bracket depending on target system
Cooling solution	with fan
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows 7 32-bit, Windows 7 64-bit, Windows 8, Windows 8 Pro
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor EDID data) Colordepth [bit/pixel]:32

Resolutions / Display types

Resolutions		Display type:	
		4:3 or 5:4	16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (analog only)	x	x	-
2048x1536 (analog only)	x	x	-
2560x1440 (DVI-D and DP only)	x	-	x
2560x1600 (DVI-D and DP only)	x	-	x

Benchmarks

The data reflects laboratory performance only. The customer configuration may perform differently, depending on the software, components and peripherals used.

Graphics controller	3DMARK (DX11)
AMD Radeon™ R9 255 *	2060
NVIDIA GeForce GT630 *	790
NVIDIA GeForce 605 *	280
ATI Radeon™ HD 7350 *	240
NVIDIA NVS 300 x16	n/a
Intel® CPU graphics	**3DMARK (DX11)**
Intel® Core™ i7 4771 processor **	850
Intel® Core™ i5 4670 processor **	840
Intel® Core™ i5 4570 processor **	810
Intel® Core™ i5 4440 processor **	790
Intel® Core™ i3 4130 processor **	670
Intel® Pentium® G3420 processor **	440

Test system for graphics cards:

* Fujitsu ESPRIMO P920	D3222
Processor	Intel® Core™ i7 4771 processor
System Memory	4 x 4 GB DDR3-1600MHz
Storage	SSD 256GB
3DMark 13 Version	Fire Strike
Graphics Driver	314.07WHQL (NVIDIA) or 13.152.0.0WHQL (ATI)
OS	Microsoft® Windows® 7 Professional 64-Bit (SP1)
System BIOS Version	R1.11.0
Hint	DirectX11 compatible hardware necessary

** same system but different processors and w/o discrete graphics card